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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,763	12/08/2003	Chung Nam Whang	2632-0144P	9360

7590 10/26/2005  
PNT Technology Inc  
Daeju B/D 3F, Seocho-Dong  
Seocho-Ku  
Seoul,  
KOREA, REPUBLIC OF

EXAMINER

JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/728,763

Applicant(s)

WHANG ET AL.

Examiner

Kirsten C. Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-11, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. The claim objections and 35 USC 112, 2<sup>nd</sup> paragraph rejections set forth in the prior Office action have been withdrawn in response to Applicant's amendments.
2. Applicant's arguments filed August 9, 2005 have been fully considered but they are not persuasive.

Applicant argues that the new search made prior to the last Office action was not necessary and it was improper for the Examiner to perform a new search and/or remove the allowability of the claims. The Examiner notes that an application may be re-searched at any time during prosecution of the case. Since the application was newly transferred to the Examiner, the Examiner chose to perform a search of her own before allowing the claims. Since the Office action of February 9, 2005 was made non-final, the Office action was proper. While the removal of allowability of the claims was not expressly stated, this was clearly implied since all of the claims were rejected over art and none of the claims were indicated to be allowable, and because the second Office action was made non-final.

With respect to the 102 and 103 rejections over Imura et al., Applicant argues that the mask in Imura et al. is provided in the embodiment of Figure 8 where a single ion treatment is used, and the only disclosure of two ion beam treatments is found in Figure 11 where it is said that the process of forming a mask layer in the ion implantation and magnetic field is repeated. Applicant argues that no details are provided as to the exact arrangement of the masks and the ion treatment, and there is no teaching that two specific

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areas are alternately covered when the other is treated by the ion beam. The Examiner disagrees. The embodiment of Figure 11 (col. 5, lines 50-55) specifically states that “the memory device is manufactured by *repeating* on the surface of a magnetic film the process for forming a *mask layer* and the ion implantation in a magnetic field. [emphasis added]” Since Figure 11 illustrates eight different directions of magnetization, it would have been understood to one having ordinary skill in the art that the step of masking one portion of the substrate while magnetizing another would *necessarily* be repeated at least once. If the separate areas were not alternatively masked during magnetization, they would all end up with magnetization in the same direction. Therefore, at least two specific areas must alternately be covered when the other is treated by the ion beam in the process of Imura et al.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-6, and 8-11 are rejected under 35 U.S.C. 102(b) as anticipated by Imura et al. (US 4,600,488).

As to claims 1, 6, and 10, Imura et al. discloses a method of manufacturing a magnetic film comprising: forming a magnetic layer on a substrate; treating a first area of the magnetic layer with an ion beam in a magnetic field while masking a second area of the magnetic layer to form a first easy axis having a first direction; and then *repeating*

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the masking/magnetization process (see Figure 11 and col. 5, lines 50-61). Since Figure 11 illustrates eight different directions of magnetization, it would have been understood to one having ordinary skill in the art that the step of masking one portion of the substrate while magnetizing another would necessarily be repeated at least once. If the separate areas were not alternatively masked during magnetization, they would all end up with magnetization in the same direction. Therefore, at least two specific areas must alternately be covered when the other is treated by the ion beam in the process of Imura et al. It is noted that Applicant's use of broad "comprising" language is open language and is inclusive of additional process steps and limitations, including the use of an ion beam *in a magnetic field* in the first area.

As to claims 4, 8, and 11, Imura et al. teaches that the magnetic layer comprises Ni-Fe alloy (col. 3, line 33). As to claims 5 and 9, Imura et al. teaches that the ion beam may be an inert gas including He or Ne (Table 1).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imura et al. (US 4,600,488).

As to claim 2, magnetic layers comprising the claimed rare earth materials are well known in the art. It would have been obvious to have used a magnetic film having

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the claimed materials with the expectation of successful results in the absence of a showing of criticality.

As to claim 3, it would have been obvious to one having ordinary skill in the art to have determined the optimum angle difference through routine experimentation depending upon a number of factors including the applied magnetic field, the desired product, the amount of ion beam implantation, etc. Further, it is noted that Imura et al. states that the first and second areas treated using the masking technique of Figure 8 (which is repeated in the process of Figure 11) may produce easy axes having an angle difference of 90 degrees.

As to claims 14 and 15, Imura et al. lacks a teaching of rotating the magnetic layer. It is noted that with respect to Figure 11, it would have been obvious to have rotated the substrate and magnetic layer while keeping the direction of magnetization stationary, because one of the substrate direction or magnetization direction must be changed relative to the other in order to achieve the different directions of magnetization illustrated in Figure 11.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Tuesday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kirsten C Jolley  
Primary Examiner  
Art Unit 1762

kcj